Effects of water temperature on early life stages of freshwater mussels: Implications for effluent criteria and climate change. Tamara J.

Pandolfo¹, W. Gregory Cope¹, Robert B. Bringolf², M. Christopher Barnhart³, and C. Arellano¹.

¹North Carolina State University, Raleigh, NC; ²University of Georgia, Athens, GA; ³.Missouri State University, Springfield, MO.

Rising water temperatures, caused by global climate change, drought conditions, industrial discharges, or land development, can have deleterious effects on aquatic communities. Freshwater mussels fulfill an essential role in benthic aquatic communities, but they are also one of the most rapidly declining faunal groups in North America. The aim of this study was to determine the temperature tolerances of the two early life stages, glochidia and juveniles, of six species of freshwater mussels. Survival trends were monitored as mussels were exposed to common and extreme water temperatures in standard acute laboratory tests. The average median lethal temperature (ET50) in 24-h tests with glochidia was 33.6°C (range 29.1 to 37.5°C). The mean ET50 in 96-h juvenile tests was 35.1°C, and ranged from 32.9 to 36.8°C. Heart rate was measured as an indicator of sub lethal thermal stress in juvenile mussels and results showed that heart rate generally increased with increasing temperature.

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